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Winston-Salem  
Regional Office

September 6, 1994

Mr. Waddell Watters  
North Carolina Department of  
Environment, Health and Natural Resources  
8025 North Point Blvd., Suite 100  
Winston-Salem, NC 27106

**Reference: Remediation System Status**

Former Unocal Facility #9787-214  
Inactive Red-Horse Truckstop  
NCDEHNR Incident #10119  
1342 Trollingwood Road, Mebane, North Carolina  
S&ME, Inc. Project No. 1354-94-603

Dear Mr. Watters:

S&ME, Inc., on behalf of Unocal Corporation, started the in-situ soil vapor extraction (SVE) and air sparging (AS) remediation systems on August 19, 1994 and August 25, 1994, respectively, in accordance with our approved Corrective Action Plan (CAP) dated October 8, 1993. Both remediation systems are presently in good operational condition. Included herein are (1) completed field operation and maintenance forms for both systems, including SVE and AS equipment operational parameters, vacuum influent and effluent OVA concentrations, well head data and radius of SVE and AS influence, (2) an emission calculation sheet for soil/groundwater remediation project, (3) MDS laboratory TPH and benzene analyses of vacuum influent (before carbon) and effluent (after carbon) air samples, (4) vacuum air flow calculations, and (5) an As-Built Remediation System Layout map.

Based on laboratory analytical results of carbon tube samples taken on August 19, 1994, the hydrocarbon extraction rate of the remediation system was 262.7 lbs./day or an equivalent of 43 gallons of gasoline/day. We expect this extraction rate to decrease dramatically over time, as the secondary source of adsorbed hydrocarbons in the vadose zone is removed. Air sparging is also effective at volatilizing and bioremediating the

dissolved hydrocarbons in the subsurface. Under current operating procedures, the SVE (vacuum) and AS (air compressor) systems are interlocked, such that the sparge system could not operate if the vacuum were shut down. In this way air sparging alone is prevented. The AS system is also cycled by a four channel automatic timer, such that the two lines of eight sparging wells are switched on and off every 12 hours, as indicated in the field O&M AS form. In this way, contaminant transport by sparging and "dry zones" are minimized, and contaminant mass transfer and ROI are maximized.

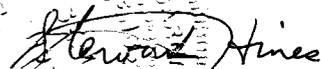
Prior to start-up of the SVE and AS remediation systems, ECOVA Corporation performed its Enhanced Fluid Recovery (EFR) process on monitor wells MW-3 and MW-4 on August 10, 1994. This process included removal of total fluids (groundwater and product) and hydrocarbon vapors from these two monitor wells by a vacuum (liquid ring type) truck at high vacuums (14 to 15-inches of Hg). A copy of the EFR data is included herein. Monitor wells MW-3 and MW-4 exhibited the greatest amounts of hydrocarbons, as per the CSA. A product thickness of 0.87 feet was detected in MW-4 (former gasoline pump island and release source) prior to EFR on August 10, 1994. On August 19, 1994 (prior to SVE start-up) and on August 25, 1994, no product was measured in MW-4 or any other well on-site. A total of 80 lbs. of total petroleum hydrocarbons or an equivalent of 11.62 gallons of gasoline was recovered by ECOVA from MW-3 and MW-4.

We plan to analyze groundwater samples from all monitor wells on-site for BTEX, MTBE and PNAs in December 1994 to evaluate groundwater quality and AS system performance. Air influent and effluent samples will be measured monthly with an OVA and periodically with carbon tubes to evaluate soil vapor quality and SVE system performance.

If you have any questions or need additional data please call.

Sincerely,

**S&ME, Inc.**



*Stewart Hines*

Stewart Hines, P.G.  
Senior Project Manager/Hydrogeologist



*Dane A. Horna*

Dane A. Horna, P.E.  
Environmental Services Manager

Enclosures

cc: Wayne Holt-Unocal  
Ray Jernigan-Property Owner  
Rick Holshouser-S&ME  
Gary Simcox-S&ME

WP51/#8/WATTERS94.96



MDS  
Laboratories

# LABORATORY REPORT

INDUSTRIAL HYGIENE

ENVIRONMENTAL TESTING

EPA/NVLAP 1262  
AIHA ACCREDITATION NO. 135

NY DOH 10903  
PA DER 06-353

NJ DEP 77678

S&ME INC., CHARLOTTE, N.C.

P.O. number: ~~10127305#1354-94-603~~

Work Order number: 5082394-123

12007

MDS client  
number number

samples received: 08/23/94  
report date: 08/30/94

4235106 VE-INF #1 FRONT

	<u>results</u>	<u>concentration</u>
1. BENZENE	0.060 mg	30.000 mg/m <sup>3</sup>
2. A HYDROCARBONS	11.350 mg	5675.000 mg/m <sup>3</sup>
3. B HYDROCARBONS	5.800 mg	2900.000 mg/m <sup>3</sup>

Air volume: 2.0 liters

4235107 VE-INF #1 BACK

	<u>results</u>	<u>concentration</u>
1. BENZENE	< 0.010 mg	< 5.000 mg/m <sup>3</sup>
2. A HYDROCARBONS	5.820 mg	2910.000 mg/m <sup>3</sup>
3. B HYDROCARBONS	0.030 mg	15.000 mg/m <sup>3</sup>

Air volume: 2.0 liters

4235108 VE-EFF #2 FRONT

	<u>results</u>	<u>concentration</u>
1. BENZENE	< 0.010 mg	< 2.000 mg/m <sup>3</sup>
2. A HYDROCARBONS	0.030 mg	6.000 mg/m <sup>3</sup>
3. B HYDROCARBONS	< 0.010 mg	< 2.000 mg/m <sup>3</sup>

Air volume: 5.0 liters

4235109 VE-EFF #2 BACK

	<u>results</u>	<u>concentration</u>
1. BENZENE	< 0.010 mg	< 2.000 mg/m <sup>3</sup>
2. A HYDROCARBONS	< 0.010 mg	< 2.000 mg/m <sup>3</sup>
3. B HYDROCARBONS	< 0.010 mg	< 2.000 mg/m <sup>3</sup>

Air volume: 5.0 liters

Lower limit of quantitation: 0.01 mg each analyte per sample  
Analytical method: NIOSH 1500, 1501

N/A: not applicable

Fred Usbeck, CIH  
Laboratory Director



Sampling Data Sheet

Job # 1354-94-603  
Job Name Unocal-McBane

Sampling Date 8/11/94  
III Egr/Tech S. Hines, D. Adams, S. S. Cox

Sample No	Lab No	Pump No	Time on off	Flow Rate	Comments	Filter Media	Analysis	Lab Comments
VE- INF#1		3076	10 min	200 cc/min	Vacuum exhaust (inflow) before carbon 2 liters	Carbon Tube	TPH (A & B) and Benzene	
VE- EFF#2		3076	25 min	200 cc/min	Vacuum exhaust (effluent after 5 liters)		TPH (A & B) and Benzene	

Description of Work Purpose of Samples

- normal turnaround  
 - Report results to S. Hines of S&ME - Charlotte, N.C.  
 - Fax # 1-704-525-3753  
 - P.O. is # \_\_\_\_\_  
 - Report as usual (Front office in 1/2)  
 - Call if questions

IWA Calculations

Sample No	Flow Rate	Time	Volume	Flow Rate	Time	Volume
3076						
3076						
S.O.V.A						
200 cc/min						
8/19/94						
5:00P						
200 cc/min						

Collection Method

Gilibrator

Reviewer R

**EMISSION CALCULATION SHEET FOR SOIL/GROUNDWATER REMEDIATION PROJECT**  
*By Soil Vapor Extraction & Air Sparging*

1. PROJECT NAME Unocal-Mebane # 9787-214 (Incident # 10119)  
 2. PROJECT LOCATION 1342 Trollingwood Rd., Mebane, NC 3. INITIAL START/UPDATE 8/19/94 (SVE), 8/25/94 (Sparging)  
 4. PROJECT DURATION 0 months x 2.1 days/month x 24 hrs/day = 50 operating hours (on 8/31/94)  
 5. 2nd QUARTER EMISSION CALCULATIONS NOTE: ppm = mg/m<sup>3</sup> x 24.45/molecular weight

POLLUTANT	EFFLUENT MAX CONC (PPM)	MOL. WT.	FLOW RATE (CFM)	CONV. FACTOR	(After Control) EMISSIONS (lbs/hr.)	EMISSIONS (lbs./day)
<i>VE - In-fluent</i> Benzene	<u>35</u>	<u>78.1</u>	<u>250</u>	<u>1.557 x 10<sup>7</sup></u>	<u>3.3E-2</u>	<u>0.8</u>
<i>VE - In-fluent</i> TPH	<u>11,500</u>	<u>70</u>	<u>250</u>	<u>1.557 x 10<sup>7</sup></u>	<u>10.95</u>	<u>262.7</u>
<i>VE - Effluent</i> Benzene	<u>&lt; 0.63</u>	<u>78.1</u>	<u>250</u>	<u>1.557 x 10<sup>7</sup></u>	<u>&lt; 2.0E-3</u>	<u>&lt; 4.6E-2</u>
<i>VE - Effluent</i> TPH	<u>6</u>	<u>70</u>	<u>250</u>	<u>1.557 x 10<sup>7</sup></u>	<u>5.7E-3</u>	<u>0.14</u>
_____	_____	_____	_____	<u>1.557 x 10<sup>7</sup></u>	_____	_____
_____	_____	_____	_____	<u>1.557 x 10<sup>7</sup></u>	_____	_____
_____	_____	_____	_____	<u>1.557 x 10<sup>7</sup></u>	_____	_____

NOTE: \* Estimated at 70. MDS states that there is no way to provide an extract molecular weight for TPH

**6. TOTAL PROJECTED VOC EMISSIONS (after control):**

VOC (lbs/hr) 10.95 x > 99.99 = 10.95 x 5.7E-3 x 50 = 0.29 / 1.43E-4  
 (2) 10.95 x > 99.99 = 10.95 x 5.7E-3 x 50 = 0.29 / 1.43E-4

TABLE 1  
VACUUM SPEED AND AIR FLOW CALCULATIONS

UNOCAL-MEBANE #9787-214  
1342 TROLLINGWOOD ROAD  
MEBANE, NC

VFD FREQ (per/z)	BLOWER SPEED (rpm)	VE DP (H <sub>2</sub> O)	VE TEMP (Faren.)	VE VACUUM/DISCHARGE (Hg)	Y (constant)	Q (SCFM)	DATE	VE WELLS ON/OFF	SPARGING WELLS ON/OFF	REMARKS
60	1760.00	3	72	9.4	178.30	308.82	8/19/94	HVE - 1, HVE - 2/NONE	NONE/AS - 1 - 7 & DMW - 5	INLET AIR FLOW, NO BLEED IN AIR
60	1760.00	2.45	164	2	184.19	303.95	8/19/94	HVE - 1, HVE - 2/NONE	NONE/AS - 1 - 7 & DMW - 5	OUTLET AIR FLOW, NO BLEED IN AIR
60	1584.00	2.85	72	9	180.17	304.17	8/19/94	HVE - 1, HVE - 2/NONE	NONE/AS - 1 - 7 & DMW - 5	INLET AIR FLOW, NO BLEED IN AIR
60	1584.00	2.5	168	1.6335	184.91	308.18	8/19/94	HVE - 1, HVE - 2/NONE	NONE/AS - 1 - 7 & DMW - 5	OUTLET AIR FLOW, NO BLEED IN AIR
60	1408.00	2	72	9	180.17	254.80	8/19/94	HVE - 1/HVE - 2	NONE/AS - 1 - 7 & DMW - 5	OUTLET AIR FLOW, NO BLEED IN AIR
60	880.00	0.4	72	12	185.59	104.73	8/19/94	HVE - 2/HVE - 1	NONE/AS - 1 - 7 & DMW - 5	INLET AIR FLOW, NO BLEED IN AIR
60	1584.00	3	72	9.2	179.24	310.45	8/25/94	HVE - 1, HVE - 2/NONE	AS - 1 - 7 & DMW - 5/NONE	INLET AIR FLOW, NO BLEED IN AIR
60	1584.00	2.6	169	2	193.42	311.87	8/25/94	HVE - 1, HVE - 2/NONE	AS - 1 - 7 & DMW - 5/NONE	OUTLET AIR FLOW, NO BLEED IN AIR
60	1056.00	1.6	76	5	197.22	249.46	8/31/94	HVE - 1, HVE - 2/NONE	AS - 1 - 7 & DMW - 5/NONE	INLET AIR FLOW, NO BLEED IN AIR
60	1056.00	1.5	124	1.22	203.68	249.46	8/31/94	HVE - 1, HVE - 2/NONE	AS - 1 - 7 & DMW - 5/NONE	OUTLET AIR FLOW, NO BLEED IN AIR





AIR SPARGING SYSTEM OPERATION AND MAINTENANCE FIELD DATA SHEET

UNOCAL - MEDIANE  
1342 TRILLINGWOOD ROAD  
MARTINEZ, CA 94553  
BAIUE JOB #134-94-003

NAME Gregory S. / Harold R.  
DATE 5/25/94  
SHEET 1 of 2

WELL ID	DISTANCE TO NEAREST SPARGE WELL	POU. PRESS. / NEG. PRESS. (% OF MED)	DEPTH TO WATER	D.O. LEVEL (MGL)	OVANOVA (PPM)	REMARKS	WELL HEAD READINGS	SPARGE WELL ID	POSITIVE PRESSURE (IN PSI)	AIR FLOW (SCFM)	STATUS (ON/OFF)	OIL COALESCING FILTER STATUS	REMARKS
MW-1	75 FEET TO AS-7	0	12.89	N/A	N/A	OTV 5/19/94 13.24'		AS-1	36.0	18.0	ON		
MW-2	48 FEET TO AS-7	-2.2	14.83			15.41'		AS-2	43.0	10.0	ON		
MW-3	40 FEET TO AS-7	0	DRY @ 12.43'			0.4		AS-3	43.0	2.0	ON		
MW-4	20 FEET TO AS-1	+5.0	16.21			16.4		AS-4	34.0	18.0	ON		
MW-6	78 FEET TO AS-7	-1.1	15.25			16.19		AS-5	34.0	20.0	ON		
MW-7	88 FEET TO AS-3	0	16.99			17.03		AS-6	40	19.0	ON		
PZ-1	18 FEET TO DMW-8							AS-7	40	13.0	ON		
PZ-2	17 FEET TO DMW-8												
PZ-3	23 FEET TO DMW-8												

RADIUS OF INFLUENCE MEASUREMENTS

TIERS IS PROGRAMMED AS FOLLOWS:

ORCKET #1 (AS-6, AS-8 AND AS-7) IS ON - 12:00AM TO 12:00PM (NOON) & OFF - 12:00PM TO 12:00AM  
ORCKET #2 (AS-1, AS-2, AS-3 AND AS-4) IS ON - 12:00PM (NOON) TO 12:00AM & OFF - 12:00AM TO 12:00PM

DATE AIR COMPRESSOR LAST SERVICED Next started 5/25/94  
NEXT DATE AIR COMPRESSOR NEEDS SERVICED  
OIL TYPE SAE 70 Synthetic oil near 500.  
FILTER PARTS  
ARE AIR COMP AND SPARGE CONTROLS FUNCTIONING PROPERLY? YES  
IF NOT, WHAT ARE THE PROBLEMS? NONE

NO Indicators  
SERVICE INDICATORS (AIR FILTER, OIL LEVEL, SEPARATOR)  
AIR FILTER OKAY ✓  
OIL FILTER OKAY ✓  
SEP. BLEND OKAY ✓

AIR COMP HOUR METER READING 000091  
AIR SPARGE CONTROL READINGS

AIR PRESSURE READING ON AIR COMPRESSOR (IN PSI) 90.0  
AIR FLOW TO AIR SPARGE (IN SCFM) 64.0  
TOTAL AIR FLOW TO AIR SPARGE (IN SCFM) 75.0  
STATUS OF FILTERS PARTICULATE OIL COALESCING WATER TRAP: PARTICULATE NEW OIL COALESCING NEW WATER TRAP NEW

Add  
Temperature  
54-56  
46-48  
170-18

ADDITIONAL REMARKS OR NOTES:

Met Doug Phillips on site, requested delivery pressure modulator valve down to 40.0 psi  
& adjusted pressure would down to operate at 95 psf or so  
Found out why oil coming out Condensate drain, when you open service valve to  
supply on to wells you must do it slow to keep pressure about 70 psi or less  
will plug through.

Give & Could not find PZ-1, PZ-2, PZ-3 to do ROI measurements.  
Should get automatic Condensate drain on unit. Call Doug Phillips & order  
Replace all pressure gauges in air sparge wells with liquid filled gauges

VACUUM SYSTEM OPERATION AND MAINTENANCE FIELD DATA SHEET

UNOCAL-MEBANE #0787-214  
1342 TROLLINGWOOD ROAD  
MEBANE, NC  
SAME JOB #1354-94-003

NAME Gregory S. Howard R.  
DATE 8/25/94  
SHEET 2 OF 2

\* System off on High Water

VACUUM UNIT READINGS	VACUUM		DISCHARGE	
	DATE/TIME OF VACUUM READINGS	8/25/94	DATE/TIME OF DISCHARGE READINGS	8/25/94
WEEKLY FOR 1ST QUARTER THEN	VACUUM GAUGE READING (PSI) SEPARATOR (H <sub>2</sub> O)		DISCHARGE PRESSURE READING (PSIG)	
	9.2	7	1.0	
BIWEEKLY (IF OKAY)	VFD SPEED (HERTZ)		OUTLET FLOW SENSOR READING (H <sub>2</sub> O)	
	90	72	2.4	
WEEKLY FOR 1ST QUARTER THEN	INLET TEMPERATURE (DEG F) @ 12"		OUTLET TEMPERATURE (DEG F) @ 12"	
	3	72	124	
BIWEEKLY (IF OKAY)	TOTAL HOURS VACUUM HAS OPERATED SINCE START-UP		OUTLET PIPE ID (4-INCHES)	
WEEKLY FOR 1ST QUARTER THEN	WATER IN SEPARATOR #17 YES		IS OUTLET SILENCER WORKING OKAY? YES	
BIWEEKLY (IF OKAY)	NOTE: LSHH LEVEL IN WATER SEPARATOR SET AT APPROX 50-GALLONS IN SEPARATOR #2 IS FLOAT SWITCH INT-1 WORKING PROPERLY? YES		ANY AIR LEAKS AT CARBON? NO	
WEEKLY FOR 1ST QUARTER THEN	INLET PIPE ID (4-INCHES) AT PSE AIR FLOW SENSOR		ANY CARBONS IN USE? YES	
BIWEEKLY (IF OKAY)	PRESSURE DIFFERENTIAL ACROSS PARTICULATE FILTER (PB-1) (PSI) - BEFORE FILTER		ANY WATER IN CARBONS? NO	
WEEKLY FOR 1ST QUARTER THEN	PRESSURE DIFFERENTIAL ACROSS PARTICULATE FILTER (PB-1) (PSI) - AFTER FILTER		OUTLET ON CARBONS SCREENED? YES	
BIWEEKLY (IF OKAY)	AMP READING ON VACUUM MOTOR? N/A		OVA/OVM READING ON STACK (WITH CARBONS) - INFLUENT (PPM)	
				0.20
WEEKLY FOR 1ST QUARTER THEN	NOTE: MAX AMP READING @ 3PHASE, 230V = AMP(S) DON'T EXCEED OR MOTOR STARTER HEATERS WILL CUT VACUUM OFF AS THEY OVERHEAT		OVA/OVM READING ON STACK (WITH CARBONS) - EFFLUENT (PPM)	
				0.20
BIWEEKLY (IF OKAY)	VACUUM SHOULD NOT EXCEED 8" HG OR AMP(S) WILL EXCEED 28!!!		PRESSURE GAUGE READINGS ON CARBONS (HG) (1)	
				18.0
WEEKLY FOR 1ST QUARTER THEN	KUNKLE VALVE (PSV-T1) BLEEDING IN AIR? NO		NOTE: INFLUENT AIR SAMPLE WITH OVA/OVM AT SAMPLE PORTS BEFORE CARBONS!	
BIWEEKLY (IF OKAY)	PRESSURE CONTROL VALVE (PCV-T1) BLEEDING IN AIR? NO		TAKE EFFLUENT AIR SAMPLE WITH OVA/OVM AT STACK AFTER CARBONS!	
WEEKLY FOR 1ST QUARTER THEN	PRESSURE SENSOR LOW (PSL-1) WORKING PROPERLY? YES		TUBE @ VACUUM	
BIWEEKLY (IF OKAY)	PSL-1 SET AT 13PSI		SAMPLE DATA	
WEEKLY FOR 1ST QUARTER THEN	NOTE: MAXIMUM ACHIEVABLE VACUUM IS 15" HG AT 500 SCFM		MONTHLY	
BIWEEKLY (IF OKAY)	LAST DATE BLOWER/MOTOR OIL CHANGED N/A		MONTHLY	
WEEKLY FOR 1ST QUARTER THEN	LAST DATE BLOWER GREASED N/A		MONTHLY	
BIWEEKLY (IF OKAY)	TYPE OIL? <u>Shell</u>		MONTHLY	
WEEKLY FOR 1ST QUARTER THEN	REMARKS: <u>Truck to R30 220/mile OTE B3/Annex 220</u>		MONTHLY	

Handwritten notes and signatures at the top of the page, including "A/Sy Fiac" and "Form (F. Howard)".

WELL ID	DISTANCE FROM MW TO NEAREST VE WELL	NEGATIVE PRESSURE READING (H <sub>2</sub> O)	DEPTH TO WATER (IN FEET)	REMARKS
MW-1	25 TO HVE-2	-2.2	SEE AIR	
MW-2	15 TO HVE-2			
MW-3	30 TO HVE-2			
MW-4	48 TO HVE-1			
MW-5	32 TO HVE-2			
PZ-1	12 TO HVE-1			
PZ-2	12 TO HVE-1			
PZ-3	14 TO HVE-1			

Additional remarks and notes at the bottom of the page, including "VAC. S) R. I" and "Page 2 of 2".



AIR SPARGING SYSTEM OPERATION AND MAINTENANCE FIELD DATA SHEET

UNION - MEBANE  
 1342 TROLLINGWOOD ROAD  
 MEBANE, NC  
 SAME JOB #134 - 94 - 803

NAME \_\_\_\_\_  
 DATE \_\_\_\_\_  
 TIME \_\_\_\_\_  
 SHEET \_\_\_\_\_

WELL ID	DISTANCE TO NEAREST SPARGE WELL	JOE PRELBY / NEEL PRELBY (C/F/POB)	DEPTH TO WATER	D.O. LEVEL (PPT)	CHLORINA (PPT)	REMARKS	SPARGE WELL ID	EXISTIVE PRESSURE (IN PSI)	AIR FLOW (SCFM)	STATUS (ON/OFF)	OIL COALESCING FILTER STATUS	REMARKS
MW-1	75 FEET TO AS-7						AS-1					
MW-2	45 FEET TO AS-7						AS-2					
MW-3	40 FEET TO AS-7						AS-3					
MW-4	20 FEET TO AS-1						AS-4					
MW-6	78 FEET TO AS-7						DMW-5					
MW-7	56 FEET TO AS-3						AS-6					
PZ-1	18 FEET TO DMW-5						AS-7					
PZ-2	17 FEET TO DMW-5						TIMERS PROGRAMMED AS FOLLOWS: CIRCUIT #1 (AS-8, AS-6 AND AS-7) IS ON - 12:00AM TO 12:00PM (NOON) & OFF - 12:00PM TO 12:00AM CIRCUIT #2 (AS-1, AS-2, AS-3 AND AS-4) IS ON - 12:00PM (NOON) TO 12:00AM & OFF - 12:00AM TO 12:00PM					
PZ-3	23 FEET TO DMW-6						PROGRAMMABLE TIMER SETUP					
AIR COMPRESSOR MAINTENANCE SCHEDULE	DATE AIR COMPRESSOR LAST SERVICED _____ NEXT DATE AIR COMPRESSOR NEEDS SERVICED _____ OIL TYPE _____ FILTER PART # S _____ ARE AIR COMP AND SPARGE CONTROLS FUNCTIONING PROPERLY? _____ IF NOT, WHAT ARE THE PROBLEMS? _____						AIR COMP. HOUR METER READING _____	AIR PRESSURE READING ON AIR COMPRESSOR (IN PSI) _____	TOTAL AIR FLOW TO ALL WELLS (IN SCFM) _____	TOTAL PRESSURE TO AS WELLS AT PRESSURE REGULATOR _____	STATUS OF FILTERS (PARTICULATE OIL - COALESCING, WATER TRAP) _____	
ADDITIONAL REMARKS OR NOTES:	SERVICE INDICATORS (AIR FILTER, OIL FILTER, ROPEVATOR) _____ AIR FILTER OKAY? _____ OIL FILTER OKAY? _____ SEP. ELEMENT OKAY? _____ AIR SPARGE CONTROL READINGS _____ DON'T EXCEED 60-PSI											



AIR SPARGING SYSTEM OPERATION AND MAINTENANCE FIELD DATA SHEET

BRUCE MEBANE  
 1342 TRAILING ROAD  
 MEBANE, NC  
 PHONE JOB #11264-84-603

NAME \_\_\_\_\_  
 DATE \_\_\_\_\_  
 TIME \_\_\_\_\_  
 SHEET \_\_\_\_\_ OF \_\_\_\_\_

WELL ID	DISTANCE TO NEAREST SPARGE WELL	POST PRESS. (PSI)	DEPTH TO WATER	D.O. LEVEL (MG/L)	REMARKS	SPARGE WELL ID	POSITIVE PRESSURE (PSI)	AIR FLOW (SCFM)	STATUS (ON/OFF)	OIL COALESCING FILTER STATUS	REMARKS
MW-1	75 FEET TO AS-7					AS-1					
MW-2	45 FEET TO AS-7					AS-2					
MW-3	40 FEET TO AS-7					AS-3					
MW-4	20 FEET TO AS-1					AS-4					
MW-6	78 FEET TO AS-7					DMW-5					
MW-7	55 FEET TO AS-5					AS-6					
PZ-1	15 FEET TO DMW-5					AS-7					
PZ-2	17 FEET TO DMW-5										
PZ-3	23 FEET TO DMW-5										
<p>PROGRAM - CIRCUIT #1 (AS-6, AS-8 AND AS-7) IS ON - 12:00AM (NOON) &amp; OFF - 12:00PM TO 12:00AM                  CIRCUIT #2 (AS-1, AS-2, AS-3 AND AS-4) IS ON - 12:00PM (NOON) TO 12:00AM &amp; OFF - 12:00AM TO 12:00PM</p>											
<p>WELL HEAD READINGS</p>											
<p>FILTERS PROGRAMMED AS FOLLOWS:</p>											
<p>DATE AIR COMPRESSOR LAST SERVICED _____                  NEXT DATE AIR COMPRESSOR NEEDS SERVICED _____                  OIL TYPE _____                  FILTER PART # S _____                  ARE AIR COMP AND SPARGE CONTROLS FUNCTIONING PROPERLY? _____                  IF NOT, WHAT ARE THE PROBLEMS? _____</p>											
<p>ADDITIONAL REMARKS OR NOTES:</p>											

STATUS OF FILTERS (PARTICULATE OIL COALESCING, WATER TRAP)  
 PARTIC F \_\_\_\_\_  
 OIL C \_\_\_\_\_  
 WATER T \_\_\_\_\_

AIR COMPRESSOR METER READING \_\_\_\_\_  
 AIR SPARGE CONTROL READINGS \_\_\_\_\_

SERVICE INDICATORS (AIR FILTER, OIL FILTER, SEPARATOR)  
 AIR FILTER OKAY? \_\_\_\_\_  
 OIL FILTER OKAY? \_\_\_\_\_  
 SEP ELEMENT OKAY? \_\_\_\_\_

AIR PRESSURE READING ON AIR COMPRESSOR (PSI) \_\_\_\_\_  
 TOTAL AIR FLOW TO ALL WELLS (IN SCFM) \_\_\_\_\_  
 TOTAL PRESSURE TO ALL WELLS AT PRESSURE REGULATOR \_\_\_\_\_  
 COUNT EXCEED 60-PSI \_\_\_\_\_



AIR SPARGING SYSTEM OPERATION AND MAINTENANCE FIELD DATA SHEET

UNCOL - MEBANE  
1342 TROLLINGWOOD ROAD  
MEBANE, NC  
SALVE JOB #1284-BA-003

S. H. Hines  
C. S. Hines

NAME S. H. Hines  
DATE 8/19/78  
SHEET 1 OF 1

WELL ID	DISTANCE TO NEAREST SPARGE WELL	POS. PRESS./ NEGL. PRESS. (% OF NEGL.)	DEPTH TO WATER	D.O. LEVEL (MG/L)	OVALOVA (PPM)	REMARKS	WELL HEAD READINGS	SPARGE WELL ID	POSITIVE PRESSURE (IN PSI)	AIR FLOW (SCFM)	STATUS (ON/OFF)	OIL COALESCING FILTER STATUS	REMARKS
MW-1	78 FEET TO AS-7							AS-1	40	2.5	ON		
MW-2	48 FEET TO AS-7							AS-2	40	3	ON		
MW-3	40 FEET TO AS-7							AS-3	40	2.5	ON		
MW-4	20 FEET TO AS-1							AS-4	40	1.2	ON		
MW-6	78 FEET TO AS-7							AS-5 DMW-5	40	4	ON		
MW-7	58 FEET TO AS-5							AS-6	40	6	ON		
PZ-1	18 FEET TO DMW-5							AS-7	40	1.1	ON		
PZ-2	17 FEET TO DMW-5												
PZ-3	20 FEET TO DMW-5												

DATE AIR COMPRESSOR LAST SERVICED	DATE AIR COMPRESSOR NEEDS SERVICED	SERVICE INDICATORS (AIR FILTER, OIL FILTER, SEPARATOR)	AIR COMP. HOUR METER READING	AIR PRESSURE READING ON AIR COMPRESSOR (IN PSI)	TOTAL AIR FLOW TO ALL WELLS (IN SCFM)	TOTAL PRESSURE TO AS WELLS AT PRESSURE REGULATOR	STATUS OF FILTERS (PARTICULATE, OIL, COALESCING, WATER TRAP)
	10/20/78	AIR FILTER OK OIL FILTER OK SEP ELEMENT OK	44.5	125	580	64	PARTIC. OK OIL C. OK WATER T. OK

ADDITIONAL REMARKS OR NOTES: Timers programmed as follows: Circuit #1 (AS-8, AS-6 AND AS-7) IS ON - 12:00AM (NOON) & OFF - 12:00PM TO 12:00AM. Circuit #2 (AS-1, AS-2, AS-3 AND AS-4) IS ON - 12:00PM (NOON) TO 12:00AM & OFF - 12:00AM TO 12:00PM.

AS-5 New Regulator installed backwards - Triped out.

Temp Gauge Red Dial → 210° ← what he looks  
Blade Dial → 230  
Trip OFF  
Oil Coming From Condensate Drain

UNOCAL #9787-214 (nebune)  
EFR DATA

SITE NUMBER: 9787-214		VISIT: 1		DATE: 8/10/94		WATER REMOVED: <100						
STACK DIAMETER IN INCHES: 3.00		M. W. IN GR./MOLE: 76		LBS REMOVED:		EQ. GAL.:						
START TIME	END TIME	TOTAL TIME (min)	INITIAL ppm	ENDING ppm	AVG. ppm	VACUUM inHg	FPM	CFM	LBS/HR	POUNDS	CUM. LBS. REMOVED	EXTRAC. WELL(S)
9:45 AM	10:00 AM	15	20,000	18,000	19,000	14	1700	83.41	18.82	4.70	5	3,4
10:00 AM	10:15 AM	15	18,000	18,000	18,000	14	1900	93.22	19.92	4.98	10	3,4
10:15 AM	10:30 AM	15	18,000	10,000	14,000	14	1800	88.31	14.68	3.67	13	3,4
10:30 AM	10:45 AM	15	10,000	12,000	11,000	14	1900	93.22	12.18	3.04	16	3,4
10:45 AM	11:15 AM	30	12,000	10,000	11,000	15	1900	93.22	12.18	6.09	22	3,4
11:15 AM	11:45 AM	30	10,000	12,000	11,000	15	1900	93.22	12.18	6.09	29	3,4
11:45 AM	12:45 PM	60	12,000	12,000	12,000	15	1900	93.22	13.28	13.28	42	3,4
12:45 PM	1:45 PM	60	12,000	12,000	12,000	14	1900	93.22	13.28	13.28	55	3,4
1:45 PM	2:45 PM	60	12,000	12,000	12,000	15	1900	93.22	13.28	13.28	68	3,4
2:45 PM	3:45 PM	60	12,000	9,000	10,500	15	1900	93.22	11.62	11.62	80	3,4

Well Number	Time	Total Depth	Casing Elev.	Depth To Product	Depth To Water	Product Thick.
MW-3	9:30 AM	13.17		-	DRY	-
MW-4	9:35 AM	23.68		18.30	19.17	0.87